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ABSTRACT

This paper reports on Oregon's Database Initiative Project (DIP). In response to inconsistent financial reports and a lack of automation, a project team was assembled by Oregon's Department of Education in 1997 with the goal of providing detailed school-level data for the 1997-98 school year in 16 Oregonian school districts. Among the project's many goals were to review, modify, update, and improve existing chart-of-accounts and identify chief factors influencing student performance. The report draws on these results to present a plan to streamline school-data collection and business processes, improve reporting, and increase the information available for educators, policy makers, and the public. The text outlines the development and implementation of DIP. It describes the resulting education database, a web-based system that will eventually collect, store, and report on data from all the state's K-12 school districts and education-service districts. The article outlines the scope and assumptions of the project; the implementation strategy; implementation activities, such as managing the project; expanding the pilot-project database; enhancing reporting capability; confirming the technical architecture; and managing organizational change. It advises educators to expect obstacles, and it encourages program implementers to assign clear responsibilities for putting the program in place. (RJM)

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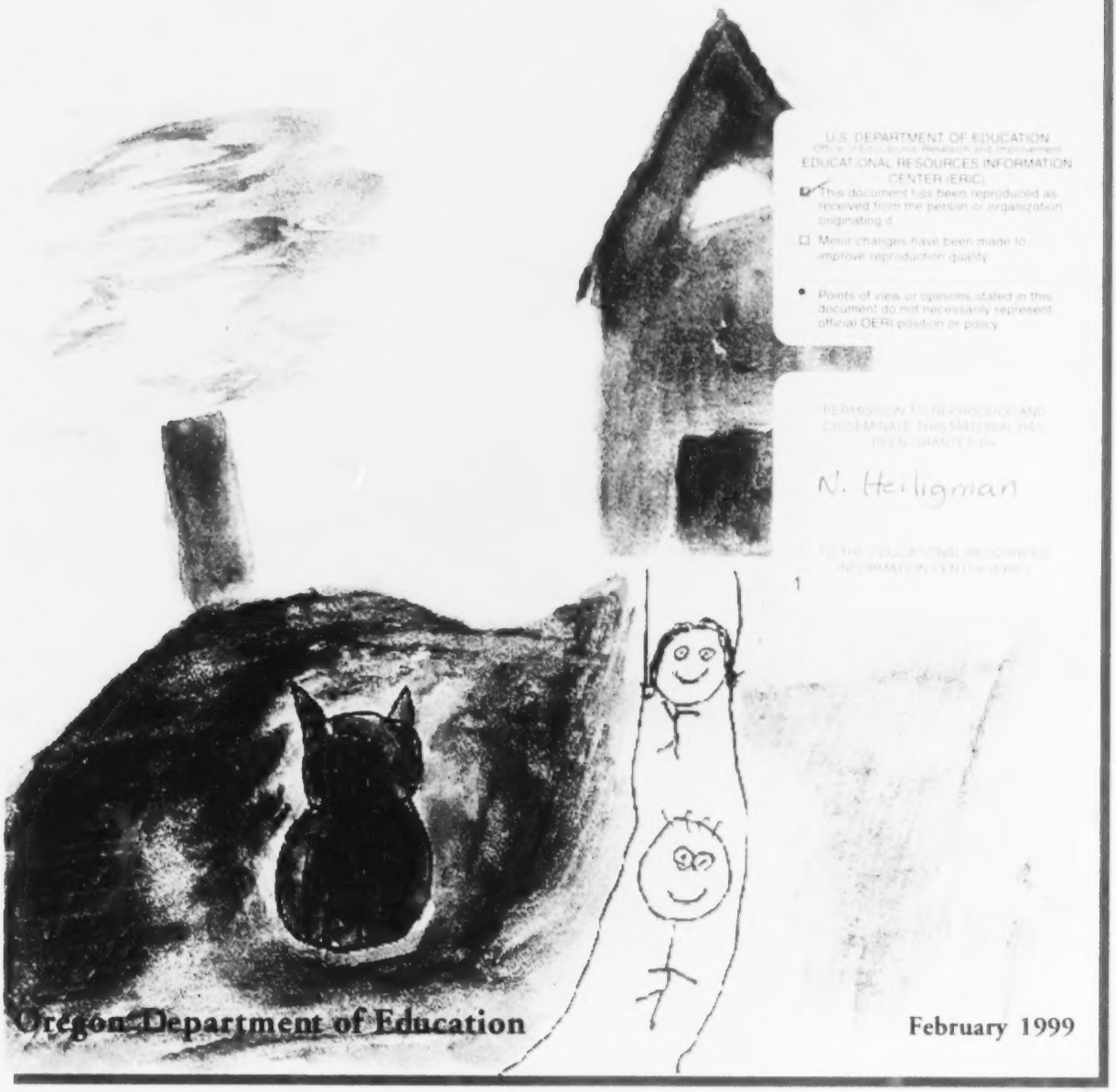
Database Initiative Project

Supporting Education Decision Making



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STAN BUNN
State Superintendent
of Public Instruction

OREGON DEPARTMENT OF EDUCATION
Public Service Building, 255 Capitol Street NE, Salem, Oregon 97310-0203
Phone (503) 378-3569 • Fax (503) 373-7968 • www.ode.state.or.us

January 21, 1999

To the Citizens of Oregon:

The Department of Education is pleased to deliver this report on the Database Initiative Pilot Project to you. It represents 18 months of collaborative effort among staff from school districts, the Governor's office, the Legislature, state agencies, school organizations, KPMG LLP and the department.

The result is a pilot database for K-12 education that relates information on school spending, use of resources and measures of student performance. We are moving into an exciting new era, using Internet technology to collect and display a wide variety of data about our schools.

But our work is not finished. As we prepare our students to meet the challenges of the 21st century, we must have the tools we need to make wise decisions. With legislative support, the department can expand the database to include all Oregon school districts over the next two years.

Policymakers, parents, school staff and the public will have information about their schools at their fingertips. And we will begin to build an understanding of how the dollars we spend relate to student achievement. Using this information will help us decide on the most cost-effective strategies for improving student performance.

I extend a special thanks to the superintendents and staff of the 16 districts that participated in the pilot project. Their hard work and support have made the project a success and given us a foundation to build on.

You are invited to visit the Database Initiative web site at http://www.ode.state.or.us/ to see the results of our initial efforts and envision the possibilities for the future.

Sincerely,

Stan Bunn

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OREGON'S COMMITMENT TO EDUCATION

> *"Oregon's workforce will be the best educated and trained in America by the year 2000, and equal to any in the world by 2010."* Oregon Shines II Objectives

The citizens of Oregon have long held lofty goals for the highest quality education for all Oregonians. And Oregon has also demonstrated a willingness to match ambitious goals with bold actions to achieve its goals. In the 1990s, two critical events have given state policy makers a key role in educational decision making.

In 1990, Oregon voters passed Ballot Measure 5, a citizens' initiative limiting property taxes and requiring the state to take responsibility for K-12 funding. Prior to Measure 5, Oregon relied heavily on local property taxes to fund schools — 70% of general operating funds came from the property tax. Now about 70% of school funding comes from the state, and the Legislature is primarily responsible for school funding decisions.

In 1991, Oregon set new high standards for improved student performance when the Legislature passed the Oregon Education Act for the 21st Century. The Act calls for dramatically raising student achievement by raising expectations for students and focusing curriculum and instruction on higher standards.

With state policy makers increasingly responsible for educational decision-making and with the public call for accountability in school spending, the Legislature passed HB 3636 during the 1997 Legislative Session. The bill directed the Department of Education to update the K-12 school budget and accounting system to produce comparable spending information for schools and districts. Data gathered from the system was to be placed in a database that is accessible to the public.

Database Initiative

With this information, policy-makers can begin to make school funding decisions based on comparable data on spending, resource allocation, and student performance. Legislators need to know where state education money goes, how it is spent, and what the results are. Local school boards need data to make budget and spending decisions.

To this end, the Department of Education articulated the following eight objectives for the Database Initiative Project:

- Review, modify, update, improve existing chart of accounts
- Relate expenditures to academic content standards
- Standardize and prescribe common definitions for expenditures
- Collect data at district and school level
- Provide for electronic data transmission and reporting
- Use data already reported to the department
- Create a set of standard reports or views
- Identify chief factors influencing student performance

This eighteen month long pilot project — a collaboration of sixteen of the state's 198 school districts, the Department of Education, and KPMG LLP — has already produced impressive results.

The project has demonstrated that the latest Internet technology can be used successfully to collect and display comparative data to support educational decision-making.

The pilot database provides detailed school level data for the 1997-98 school year for the sixteen Oregon districts that are participating in the project. It includes information on spending, staffing, school processes, student performance and demographics, and school infrastructure. A variety of reports are now available on the Internet, including profiles of each pilot district and school and school by school comparisons of class sizes, instructional time, and staffing patterns. Financial reports, using revised account codes, provide

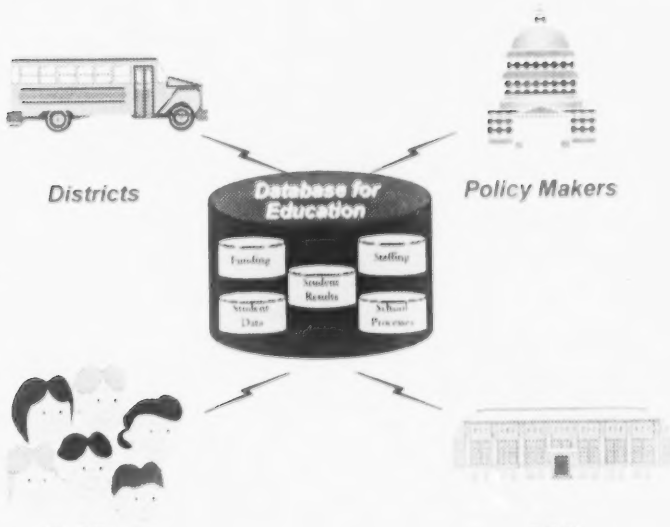
comparative information on school district budgets, revenue sources, and school level spending.

The ultimate goal is far more ambitious, however. The Legislature will require data from all 198 districts to be able to make well-informed spending decisions. To do so will require a statewide effort to enhance the results of the pilot project and extend the database to districts throughout the state.

In this report, we outline a quick summary of the plan for building the statewide Education Database. For more information and a detailed technical report, visit the Database Initiative website (http://dbi.ode.state.or.us), or contact the Oregon Department of Education.

The following pages present a far-reaching plan to streamline school data collection and business processes, improve reporting, and increase the information available for educators, policy makers, and the public.

What will it mean for Oregonians? Better educational funding decisions to support continuous improvement in student performance, greater public access to education-related data, and a model that other government organizations can follow.



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Database Initiative

BETTER DECISIONS THROUGH INFORMATION AND TECHNOLOGY

How is education information managed and collected today? Few people outside of the education community really know. So before we get into the heart of this report — the results of the Pilot project, and the plan to extend the Database statewide — let us give you a brief background.

Traditionally, managing and collecting comparable education data in Oregon, like most states, has been hindered by two factors.

First, inconsistent financial reports. School districts throughout the state have not always used the same account codes for budgeting and accounting. The result: apples and oranges. The costs of teacher training or classroom computers, for example, may be reported differently in Portland School District than in Bend or in LaGrande.

Second, lack of automation. Each of the 198 districts throughout the state report a variety of data on more than one hundred paper forms, requiring a huge manual processing effort. In addition to the effort required to wade through volumes of paper, much of the data collected is inaccurate, redundant, and outdated.

So it became clear that to provide comparable education data to the Legislature to support policy making, the state needed to update the state accounting codes and use new technology to collect and report data. Currently, Oregon is one of only a handful of states that has taken the initiative to use the Internet to both collect and report comparable education data, and our progress has drawn the attention of others who have yet to take the plunge.

The Challenge

> *"Seventy percent of the money for schools comes from the state. As a legislator, I need to be able to justify to the people of Oregon the money we are spending on education."* Rep. Mark Simmons, R-Elgin

Today, legislators do not have the information they need to see how schools are spending state money — $4.35 billion in the current biennium — and the results.

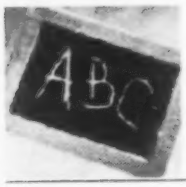
Similarly, educators across the state also need better information to allocate resources within their district. Current budgeting practices in many districts make it impossible to isolate the specific costs of classroom instruction at each school. And making comparisons that are not "apples to apples" can create misinformation and confusion.

The growing volume of data and need to access the information has a huge impact on the Department of Education. Current business processes may have been appropriate decades ago, but today, with many times the workload and generations of advances in technology, they are now seriously out of date.

It is clear that more challenges lie ahead. Districts must train their staff to use a revised budget and accounting system. We will have to choose and implement the appropriate technology to transform our operations. And we will have to redesign business processes to take advantage of the new technologies to support the growing need for quick, accurate, comparable data.

Pilot Results

> *"...the project is breaking ground in its attempt to connect educational spending and practices to student performance."* Mary F. Fulton, Education Commission of the States



In recognition of these challenges, the pilot project was divided into four major parts to demonstrate the feasibility and value of using technology to collect and report data for decision making and accountability. These four parts are:

Uniform Chart of Accounts

The revised budget and accounting manual provides more consistency and detail in financial reporting and requires expenditure reporting at the school level, rather than the district level.

The manual also gives school districts more instructions for classifying expenditures to promote uniform accounting. The revisions do not change the current account code structure, so they will not require any major computer programming changes in the school districts.

The revised Program Budgeting and Accounting Manual for School Districts, which includes the school finance chart of accounts, was adopted by the State Board of Education for the 1999-2000 fiscal year and is available on the Internet.

Database Development

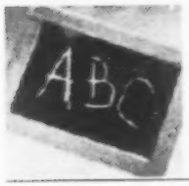
The Database for Education is available via the Internet for use by educators, state policy makers, and the public with reports on student demographics, school spending, student assessment, staffing, and infrastructure.

Data Loading

The department built a web-based data loading system to allow districts to send their data to the state via the Internet.

Internet Reporting

The team developed a web-based reporting system to allow stakeholders and the general public to generate reports on-demand from the pilot database.



The pilot has already benefited legislators, educators, and the public by providing comparable, accessible data, taking the first steps toward:

- A better understanding of school spending
- A better understanding of how resources are used
- Information about which programs work and at what cost

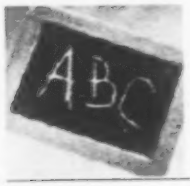
But the pilot has created a "snapshot" of one year's data for only sixteen districts. We now need to enrich the database with data from all districts and enhance the depth and quality of the data. To understand trends and make connections between spending and results, the state will need to collect and analyze data over a number of years.

Our Approach

The Department of Education put together a project team in December 1997, including seven department staff and KPMG LLP to work with a group of sixteen pilot districts to create a database for education.

The Pilot Districts

The fifteen school districts and one Education Service District that have participated in the pilot project reflect diversity in district size, geography, program costs, and student demographics, including ethnic mix and special needs populations. The sixteen districts represent 8% of the districts in the state but contain approximately 30% of Oregon's K-12 students.



Database Initiative

Inclusive Process

The project team developed an inclusive, collaborative process to draft the proposed update to the chart of accounts and to solicit feedback from school districts around the state. Comments and suggestions have been incorporated into the updated manual.

In addition, the project team conducted a series of meetings with pilot district staff, groups of stakeholders, and the Legislative Council on Quality Education, to define the most important educational indicators to include in the database. The list of prioritized indicators is available on the Internet.

Training & Support to Districts

The department has held a series of workshops around the state to assist school districts with implementing the budgeting and accounting changes for the 1999-2000 school year. In addition, frequently asked questions regarding the Chart of Accounts are posted and updated on the website. Pilot district staff who have already implemented the changes are assisting in the training workshops.

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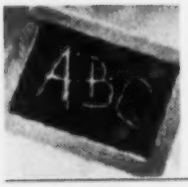

Technical Approach

The pilot relied heavily on the use of web technology and off–the–shelf software products. This approach resulted in less customized software, shorter development times, ease of maintenance, and reduced project risk.

Incremental Development Approach

The project team used an incremental approach to develop the pilot database to reduce project risk. The major parts of the project: building the database, collecting data through the Internet, and displaying reports, were developed and demonstrated in eight increments. This approach allowed project participants and stakeholders (staff from school districts, state agencies, the Governor's office, Legislature, and K-12 school organizations) to "see and touch" the database as it was being developed and to give the team feedback. In turn, the project team made continuous changes and improvements based on input from the stakeholders.

This unique public–private partnership helped us to demonstrate the technical feasibility and value of collecting and reporting education data using web technology.

The proposed next steps, highlighted on the following pages, present a plan for implementing the database statewide to fully meet the challenges of education in the 21st century as well as Oregon's objectives.

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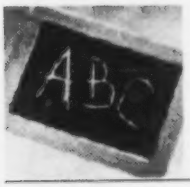


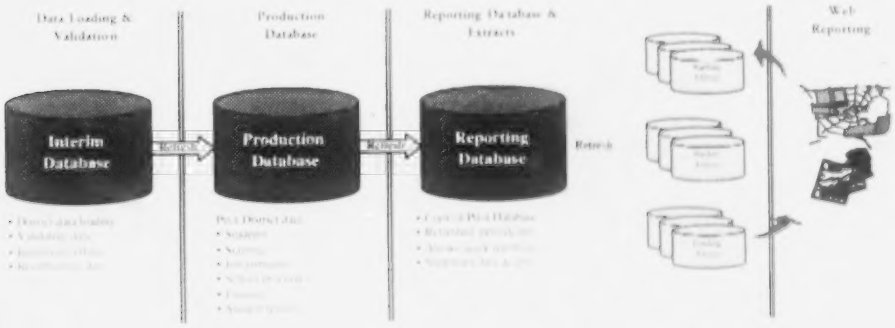
Database Initiative

A STATEWIDE PLAN

The Governor's 1999-2001 budget proposes spending an additional $3.3 million to implement the statewide K-12 Education Database.

> *"The database will help all policy makers, managers and education stakeholders make wise decisions about education strategies."* Governor's Budget in Brief 1999

The mandate is clear. The technology and approach have been proven. But what will a statewide Database for Education look like? And how will we implement it?



An Overview

Oregon's Education Database will be a web–based system to collect, store and report on data from all of the state's K-12 school districts and education service districts. By January 2001, it will contain three years of comparative data for the sixteen pilot districts (1997-98 through 1999-2000) and one year of data for all districts (1999-2000).

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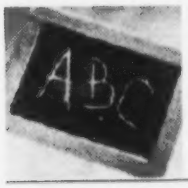

	Data Collected from School Districts	Data Available	
		On Internet	For Legislative Session
Pilot Data	Dec. 1997 - Dec. 1998	Jan. 1999	Jan. 1999
	Dec. 1998 - Dec. 1999	Jan. 2000	Jan. 2001
Statewide	Dec. 1999 - Dec. 2000	Jan. 2001	

The following summary of our implementation plan includes:

- Scope and assumptions
- Statewide implementation strategy
- Overview of activities

Scope and Assumptions

Specific assumptions for the statewide project scope, approach, and timeframes include:

- The project will incorporate all Oregon districts into the Database for Education
- Project start date planned for July 1, 1999
- The Database for Education will contain data for the 1999/2000 fiscal year
- Department of Education will dedicate 13 FTE's throughout the duration of the project (about 20 months)
- The project will use an incremental, phased approach
- ODE will continue to use and build upon the State's existing telecommunications network

Implementation Strategy

The statewide implementation strategy is designed to lower the project risk by recognizing effort required by districts to format and transmit their data. Our implementation strategy was designed with the following factors in mind:

- Department of Education and school district business cycles
- Department and district resource requirements
- The Legislature's need for timely information
- Data availability
- Data quality

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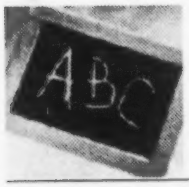

The general approach for statewide implementation is:

- Implement the entire database system, including hardware, software, network, and telecommunications
- Implement the financial data loading process that has been developed during the Pilot project for all of the districts
- Develop the non–financial data loading software and implement the data loading process in all of the districts

Implementation Activities

The major activities for adding all school districts to the Database for Education are:

- Task 1 – Manage the project
- Task 2 – Expand the pilot database
- Task 3 – Enhance data loading
- Task 4 – Redesign business processes
- Task 5 – Enhance reporting
- Task 6 – Confirm technical architecture
- Task 7 – Manage organizational change
- Task 8 – Implement statewide

Task 1: Manage the Project

Strong leadership and sound planning are essential to an undertaking of this magnitude. It is also essential to reach agreement on the project scope and expectations as well as to set the foundation for the management and control of the project. The primary means for meeting these objectives is a detailed statewide implementation workplan.

Task 2: Expand the Pilot Database

As we bring all school districts into the database, the information available to support decision making and inquiries will increase in two ways: depth and breadth. First, the depth of the database will increase as the volume of data from all districts is added in this phase.

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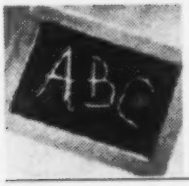


In addition, the database will also increase in its breadth as additional data elements required by the department, its constituents, and stakeholders are modeled into the database.

Task 3: Enhance the Data Loading Process

One of the objectives of this initiative is to reduce the number of paper forms used by districts to report information to ODE. We developed an automated data loading process during the pilot that allows pilot districts to transmit and verify their data over the Web. Now we must build on this process to automate the loading of non-financial district data, such as student demographic data, to reduce the number of paper forms required by ODE. In addition, we will also confirm our overall data loading design, implementation, and workflow to help ensure that it can be scaled up for its implementation statewide.

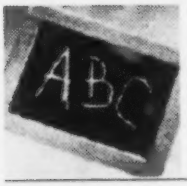
Task 4: Redesign Business Processes

Reducing the amount of paper processing will provide great opportunities for streamlining business processes and workflow. Rather than the laborious processing of tens of thousands of pieces of paper, ODE staff will be able to concentrate their efforts on the quality and analysis of the data, not data entry. To achieve this objective, we will review business processes at both the department and district levels to identify opportunities to streamline workflow and realize efficiencies resulting from automating the data loading process.

In addition to business processes, we will also examine the following to streamline data collection:

- Identify opportunities to change collection dates
- Review federal reporting requirements
- Review interagency reporting requirements

Task 5: Enhance Reporting Capability



We developed a reporting website in the pilot that displays a wide range of information from the Database for Education to project stakeholders and the public. Now, as the information becomes richer with the addition of all districts, we must enhance the web reporting system to provide a greater variety of reports, increase data access, and enhance the Education Database website.

Task 6: Confirm the Technical Architecture

In addition to examining data requirements and business processes, it is critical to validate and refine the technical environment and computing infrastructure required to implement and operate the Database for Education statewide.

The technical architecture involving the hardware, software, operating system, database management systems, telecommunications, and Local Area Network/Wide Area Network must be fully developed and implemented to support a successful statewide implementation.

Task 7: Manage Organizational Change

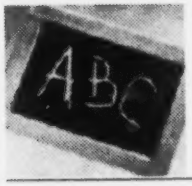
Recognizing that there are often institutional barriers to change, an important task will be to develop and implement a change management strategy.

We will monitor the project on an on-going basis to reduce the organizational change issues that can burden projects of this magnitude, including:

- Identifying cultural, technical and organizational barriers
- Developing a structured set of actions to eliminate or manage the barriers
- Monitoring the implementation
- Tracking the results achieved measuring success

Task 8: Implement the Database Statewide

Technology is a powerful tool that can help the Department of Education, districts, policy-makers, and the public achieve the objectives articulated throughout this report.



This task begins early in the project and continues throughout to conduct the necessary planning, preparation, training, and technical implementation required to bring all districts into the Database for Education, including:

- Installing the production system (hardware, software, network, and operating system software)
- Loading data
- Developing standards and procedures
- Training users

Taking Action

The value of this summary is not what is written in these pages, but what happens as a result. And that, in turn, depends on strong leadership and sound planning. If the Database for Education is to extend beyond data from sixteen districts, the Department of Education, all districts, and stakeholders across the state will have to take an active and assertive role, promoting five fundamental implementation strategies.

Assign clear responsibilities for implementing change. Successful implementation will depend on support from the top, a sponsor who has the authority to ensure that changes will happen, and clearly defined project management roles. Otherwise, project participants are unlikely to buy into the effort or acknowledge its importance.

Assure sufficient resources for implementation. One of the big challenges facing the Department of Education and districts, as they embark on this effort, is the scarcity of available resources. Implementing the Database for Education statewide will require the commitment of staff time for participation in implementation teams, as well as other resources for technical and administrative support. This investment will more than pay for itself over the long run.

Expect obstacles. Change agents should expect obstacles, in the form of reluctant staff, concerned educators, statutory roadblocks, logistical blunders or

scheduling miscalculations. While planning can reduce the obstacles, it cannot eliminate them. Flexibility is therefore critical.

Establish task implementation teams. While support from the top is essential, implementation cannot succeed without change agents throughout the organization as well. Teams made up of insiders and outsiders make particularly effective change agents, since they spread the responsibility and allow greater input in decision-making.

Communicate, communicate, communicate. We cannot over-emphasize the need for developing and communicating clear messages about the need for the Database for Education to staff, districts, stakeholders, and the public. The communication plan should involve three phases: making a case for the database, formulating a vision for the future, and celebrating success and communicating results. In each, consistency and candor should be the rule.

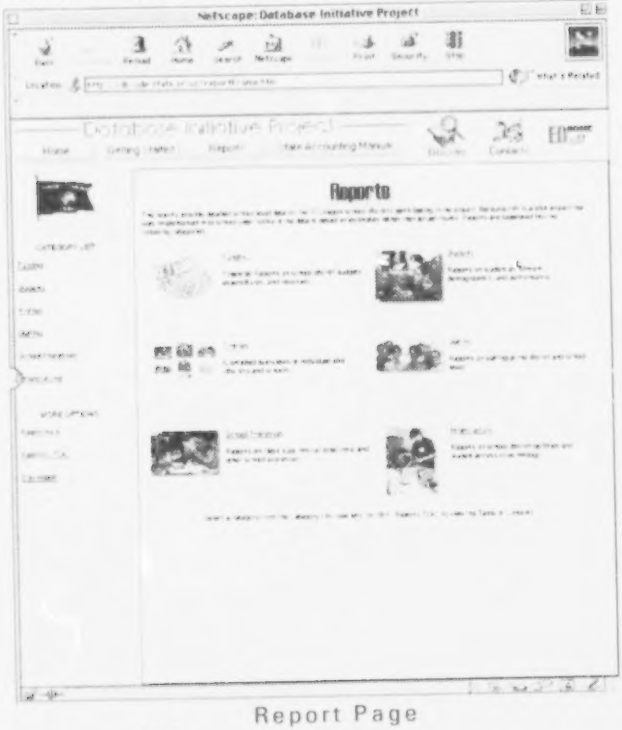
At the end of the day, what matters is what gets done. The Department of Education and project stakeholders have taken the first step by developing the pilot for the Database for Education. With adequate planning and support, the database will become a reality.

Database Initiative

SAMPLE WEB PAGES

Home Page

Visit the Database Initiative website:
http://dbi.ode.state.or.us



Report Page

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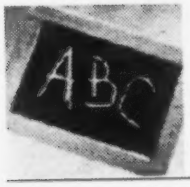

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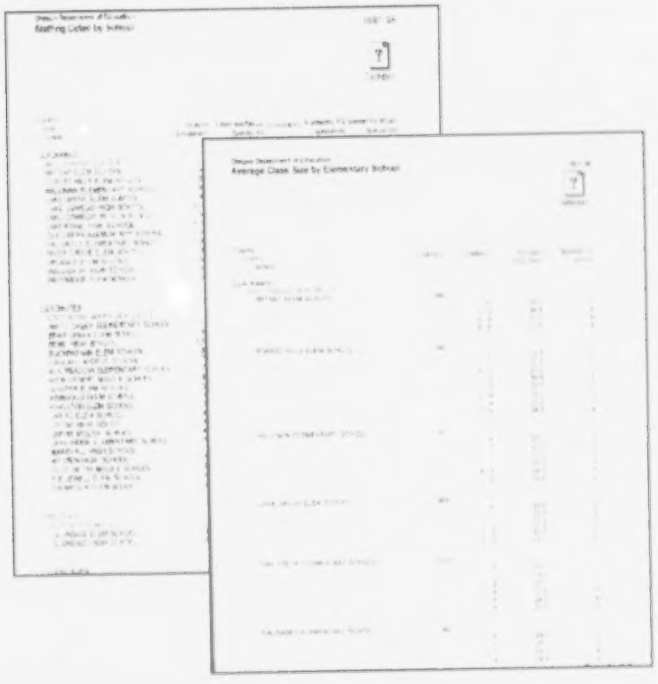
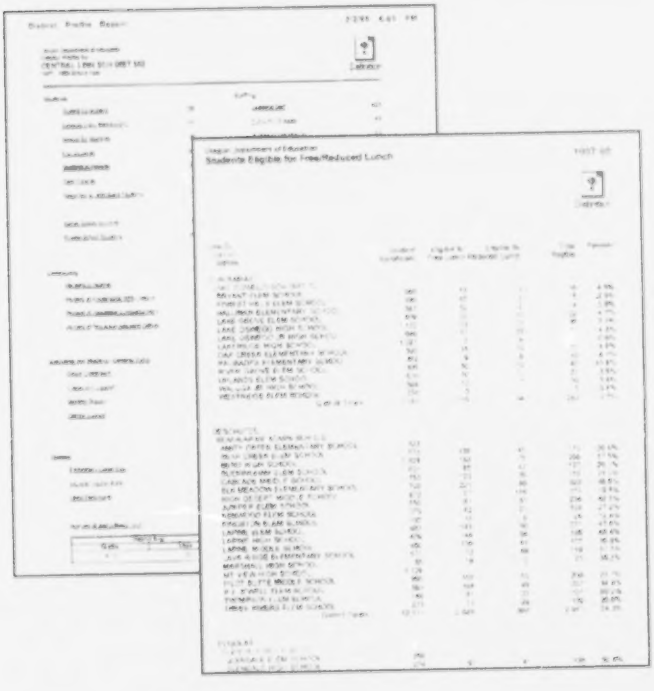
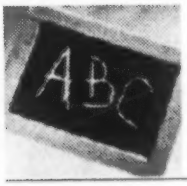
SAMPLE REPORTS





BEST COPY AVAILABLE



ACKNOWLEDGEMENTS

The Department of Education wishes to thank the staff of the pilot districts and the members of the Database Initiative Committee for their contributions to the project.

Pilot Districts

Bend–LaPine	David Douglas
Eugene	Glendale
Hood River	Lake Oswego
Central Linn	Lake ESD
Lakeview	Mitchell
Greater Albany	Lincoln County
Salem–Keizer	Portland
LaGrande	Nyssa

Database Initiative Committee

Name	Organization
Steve Bender	Legislative Fiscal Office
David Campbell	Clackamas ESD
Chris Durham	Department of Education
Dave Fajer	Department of Administrative Services
Ann Glaze	Legislative Fiscal Office
Margaret Hunt	Legislative Council on Quality Education
Walter Koscher	Department of Education
Susan MacGlashan	Legislative Fiscal Office
John Marshall	Oregon School Boards Association
Greg McMurdo	Department of Education
Frank McNamara	Confederation of Oregon School Administrators
Steve Meyer	Legislative Revenue Office
David Rike	Department of Education
Vern Riles	Legislative Council on Quality Education
Al Shannon	Oregon Association of School Business Officials
Geronimo Tagatac	Dept of Administrative Services
Jean Thorne	Office of the Governor
Ken Thrasher	Oregon Business Council